ENGLISH

PCM100

230V automation central unit for sliding gate

USER MANUAL

For PCB circuits 425ama-2.00

CE Made in Italy
EMC 89/336 CEE

Sistema certificato
UNI EN ISO9001:00

Important Safeguards

- Please read this manual carefully before the installation and keep it for future reference.
- Installation, electrical connections and adjustements must comply with technical and safety standards in force. (UNI 8612).
- HILTRON Srl cannot be held responsible for failure to observe technical standards in the construction of gates, or for any deformation of gates which may occur during the use.
- This product has been designed and manufactured only for the use stated in this manual. Any other use not expressly set forth will affect the reliability of the product and/or could be source of hazard.
- HILTRON Srl cannot be held responsible for any damage caused by improper use or different from the use for wich the autamtion system is destined to.
- Do not use this device in areas subject to explosion: the presence of flammable gas or fumes is a serious hazard.
- Before carrying out any operations, turn off the system's main switch.
- An omnipower switch shall be provided for the installation with an opening distance of the contacts of 3 mm or more. Alternatively, use a 6A thermomagnetic breaker with a multi-pole switching.
- Ensure that there is a differential switch up-line of the electrical system, with a trip threshold of 0.03A.
- Check that the earthing plant is in perfect condition and connect it to the metallic parts. Also earth the Yellow/Green wire of the operator.
- The end-user must avoid any attempt to repair or adjust the automation personally. These operations must be carried out only by qualified personnel.
- For maintenance operations, use only CIA original spare parts produced by HILTRON Srl. Do not carry out any modifikeptcations to automation components. Packaging materials (plastic, cardboard, etc.) are a potential hazard and must be out of reach of children.
- The installer must supply all informations regarding manual operation of the system in the event of an emergency and provide the end-user with this manual attached to the product.
- The automation is fitted with an anti-crush safety system that is a torque control device.
- In any case, HILTRON Srl suggests the installation of others safety devices, in accordance with standards in force, system operating logic and weight and dimension of the gate.
- The safety devices (i.e.: photocells, pneumatic edges, etc...) protect areas wherethere is a mechanical movement hazard (i.e.: crushing, entrapment and cutting). Each installation must be fitted with at least one flashing light (i.e.: item LAMP12FG) or with at signalling plate (i.e.: item TRG CIA) fixed to the gate.
- HILTRON Srl cannot be held responsible regarding safety and correct operation of the automation in the event that parts other than CIA original parts (produced by HILTRON Srl).

HiLTRON S.r.l.
PROGETTAZIONI E PRODUZIONI ELETTRONICHE

DICHIARAZIONE CE DI CONFORMITA'

SECONDO LE NORME ISO/IEC GUIDA 22 EN 45014

COSTRUTTORE: **HiLTRON S.r.l.**

INDIRIZZO: **Via Caserta al Bravo, 218 Napoli**

MARCHIO UTILIZZATO: CIA

CODICE PRODOTTO: **PCM100**

DESCRIZIONE DEL PRODOTTO: **CENTRALE DI AUTOMAZIONE PER CANCELLO SCORREVOLE**

Il prodotto sopra descritto risulta conforme ai requisiti prescritti nelle seguenti norme:

NORMA APPLICATA	TITOLO
EN50081-1 (1992)	NORMA GENERICA DI EMISSIONE Classe della norma generica: domestico, commerciale ed industriale leggero.
EN50082-1 (1992)	NORMA GENERICA DI IMMUNITA' Classe della norma generica: domestico, commerciale ed industriale leggero.
EN60335-1 (1996)	NORMA PER LA SICUREZZA DEGLI APPARECCHI ELETTRICI D'USO DOMESTICO E SIMILARE

La conformita' e' stata valutata sulla base di prove eseguite su campione e con allestimento che rispecchia la configurazione funzionale prevista per la sua utilizzazione allestita interamente con prodotti CIA di produzione HiLTRON S.r.l. .
Pertanto il prodotto soddisfa i requisiti della direttiva EMC 89/336/CEE e BT 73/23/CEE.

Napoli, 17 Marzo 1999

L' AMMINISTRATORE DELEGATO

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1 Introduction

1.1 Central Unit Description

PCM100 Central Unit for sliding gates operates a geared-motor 230Vac 700VA max, as MS100 or MS200 producted by CIA, by an electrical clutch, realized with a microprocessor of last generation. PCM100 Central Unit is furnished with a sophisticated circuit of auto-diagnosis that controls costantly the operation of the system and connected devices; in case of troubles, the circuit stops all central unit operation. The monitoring of peripheral operating connected to the central unit is displayed by LEDs placed on the circuit. Moreover, PCM100 Central Unit is furnished also with a electrical brake to guard the stop of geared-motor. In place of the brake, the slowing down function is activated 3 seconds before the limit stop to avoid unnecessary impacts during the opening and closing operating.

PCM100Central Unit is in accordance with EMC 89/336 directives and 73/23 EEC directives.

1.2 Central Unit Overview

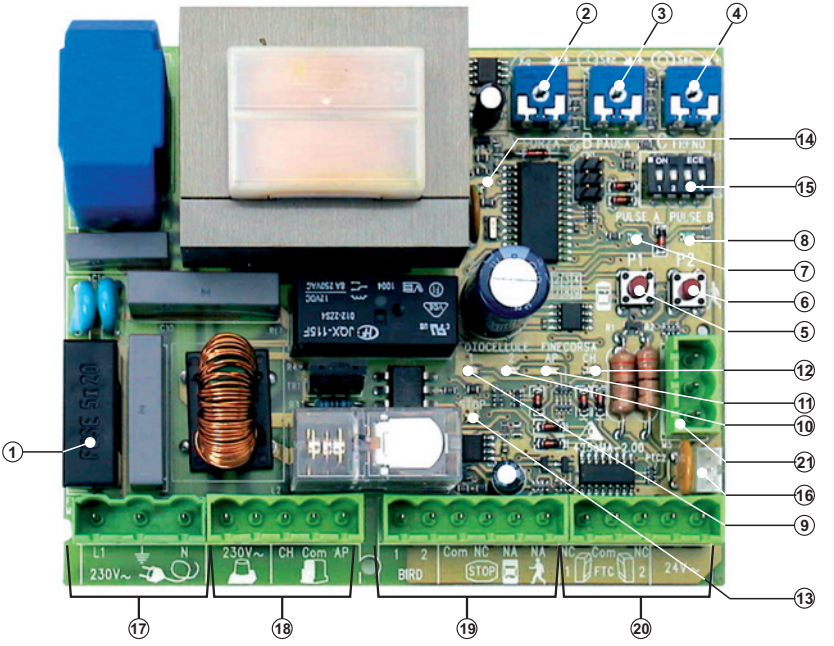
- SLOWING DOWN function withBRAKE trimmer at minimum.
- BRAKE function adjustable by trimmer with exclusion at minimum.
- Programmable operating modes: Automatic, Semiautomatic, step-by-step with automatic reclosing, step-by-step with STOP.
- Built-in interface for BIRD receiver.
- TORQUE adjustment by trimmer.
- Operation Autodiagnosis.
- Peripheral monitoring by LEDs.
- Regulation trimmer: BREAK, PAUSE, CROWD FORCE.
- Total Opening control input.
- Partial Opening control input.
- STOP control input.
- 2 configurable inputs for photocells as IR-SYSTEM with AUTODIAGNOSIS type.
- External Box in ABS - IP44.

1.3 Technical Features

- Power supply voltage: 230V~ ±10% 50Hz
- Normal Current Absorption: 6W
- Service output voltage: 24V~ ±5% max 0,1A
- Opening/closing time: max 90 sec.
- Time of Pause: 4 ÷ 60 sec.
- Operating Temperatures: -25ºC ÷ 55ºC
- External box dimensions (WxHxD): 127x138x57mm
- Board dimensions (WxH): 98x118mm

2 Installation

2.1 Board Description



① Voltage fuse (250Vac 3,15A)

② Trimmer A: electronic clutch

③ Trimmer B: time of pause

④ Trimmer C: electr. brake / slowing down

⑤ P1: total opening

⑥ P2: partial opening

autoapprendimento codice radiocomando

⑦ LED Button P1

⑧ LED Button P2

⑨ LED photocell 1 status

⑩ LED photocell 2 status

⑪ LED opening limit stop status

⑫ LED closing limit stop status

⑬ LED STOP Status

⑭ LED microprocessor diagnosis

⑮ Setup Dip-Switch

⑯ Opening/closing limit stop connector, to use when central unit is installed inside motor.

⑰ 230Vac power supply clamps

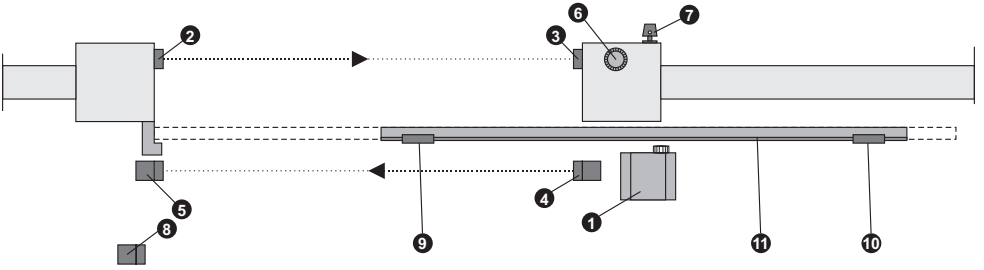
⑱ Flasher and motor clamps

⑲ BIRD and commands clamps

⑳ Photocells and 24 Vac clamps

㉑ Opening/closing limit stop clamps, to use when central unit is installed outside motor.

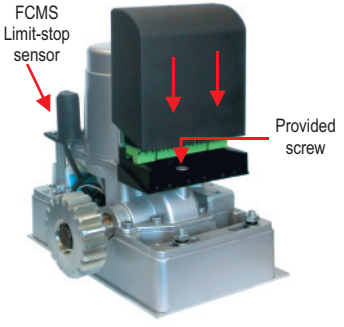
2.2 Example of installation



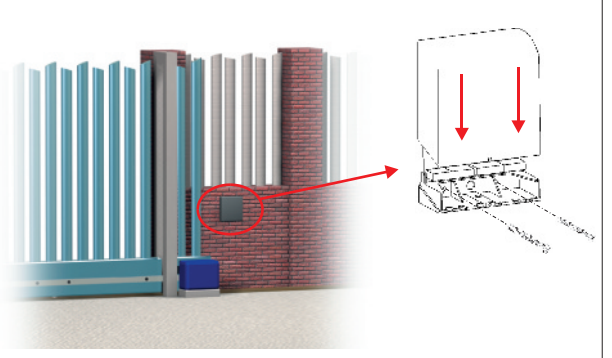
❶	**MS100 + PCM100 + FCMS**	Geared-motor MS100 with PCM100 central unit and magnetic limit stop sensor FCMS
❷	**FX30 / FX40 / FX55 (TX)**	Transmitting photocell 1
❸	**FX30 / FX40 / FX55 (RX)**	Receiving photocell 1
❹	**FX30 / FX40 / FX55 (TX)**	Transmitting photocell 2
❺	**FX30 / FX40 / FX55 (RX)**	Receiving photocell 2
❻	**LAMP230G**	230Vac electronic flasher
❼	**BIRD**	VHF receiver with antenna
❽	**SC1**	Key selector
❾	**FCMM**	Magnetic opening limit stop
❿	**FCMM**	Magnetic closing limit stop
⓫	**CRP**	Plastic rack

PCM100 central unit can be installed inside the geared-motor MS100 by the provided screw, or it be fixed at the wall by two screw anchors.

In both cases, you must fix the cover to the base by the screw furnished with the central unit.

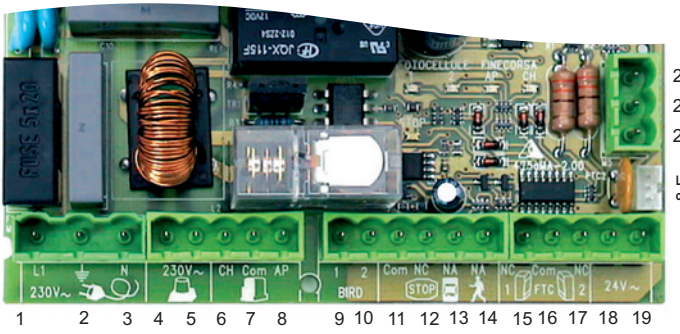


PCM100 central unit installed inside of MS100 motor



Centrale PCM100 installata a muro

2.3 Connections

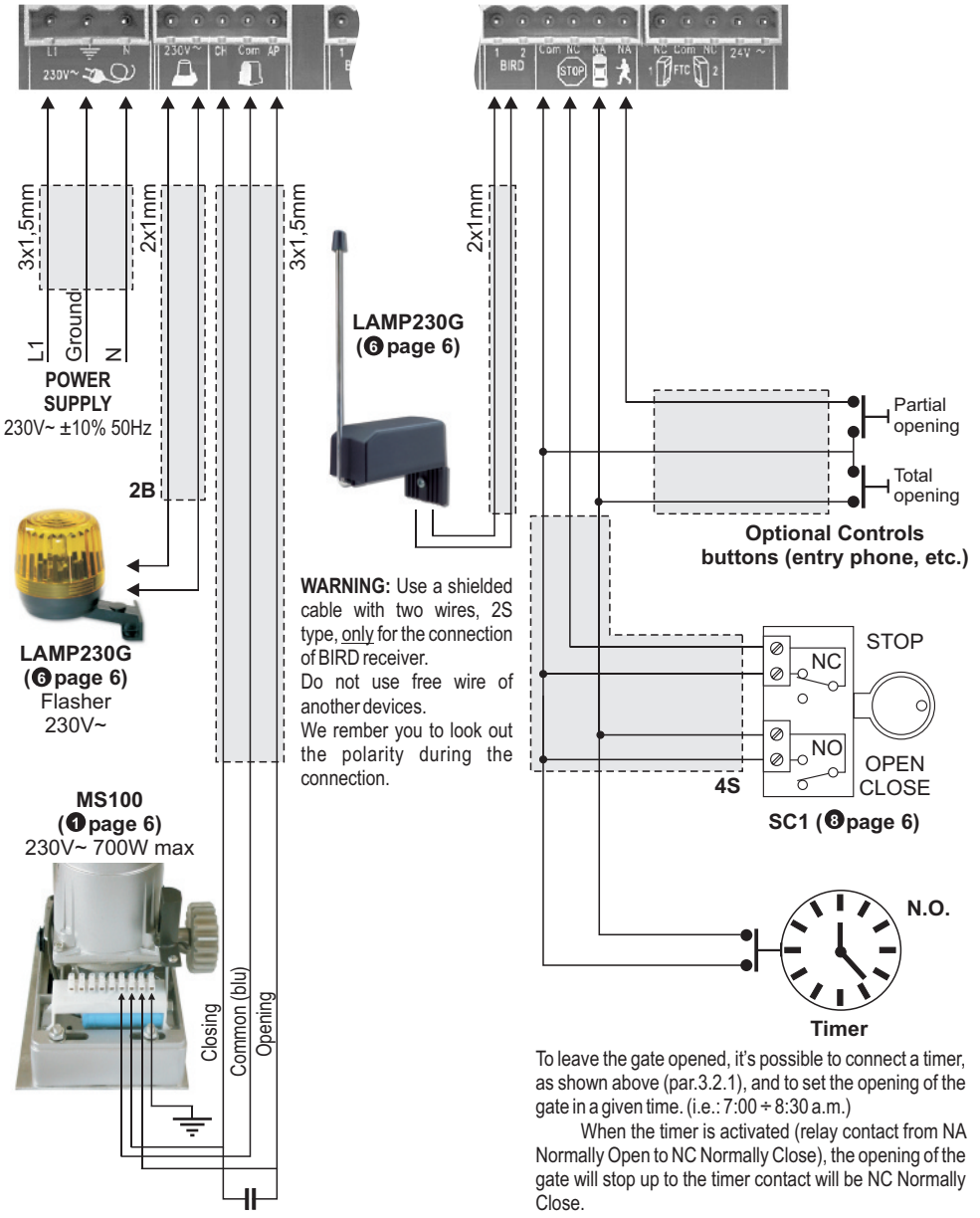


Limit-stop connector Use this connector only if central unit board is installed inside of the geared-motor.

NOTE: If it should be necessary to invert the limit-stop wires, invert the ❾ and ⓫ magnets at page 6.

1 - L1 2 - Ground 3 - N	POWER SUPPLY 230V~ ±10% 50Hz
4 - Pole 1 5 - Pole 2	ELECTRONIC FLASHER 230V~
6 - Closing 7 - Common (blu wire) 8 - Opening	GEARED MOTOR 230V~ 700W max
9 - Pole 1 (clamp 1 BIRD) 10 - Pole 2 (clamp 2 BIRD)	BIRD ANTENNA
11 - Common 12 - Pulse STOP (NC) 13 - Pulse A (NO) 14 - Pulse B (NO)	COMMANDS
15 - NC 16 - Common 17 - NC 18 - 24V~ max 100mA 19 - 24V~ max 100mA	PHOTOCELLS (FX30 - FX40 - FX55)
20 - Opening limit-stop 21 - Limit-stop common 22 - Closing limit-stop	LIMIT-STOP Use this clamps only if central unit board is installed outside of the geared-motor.

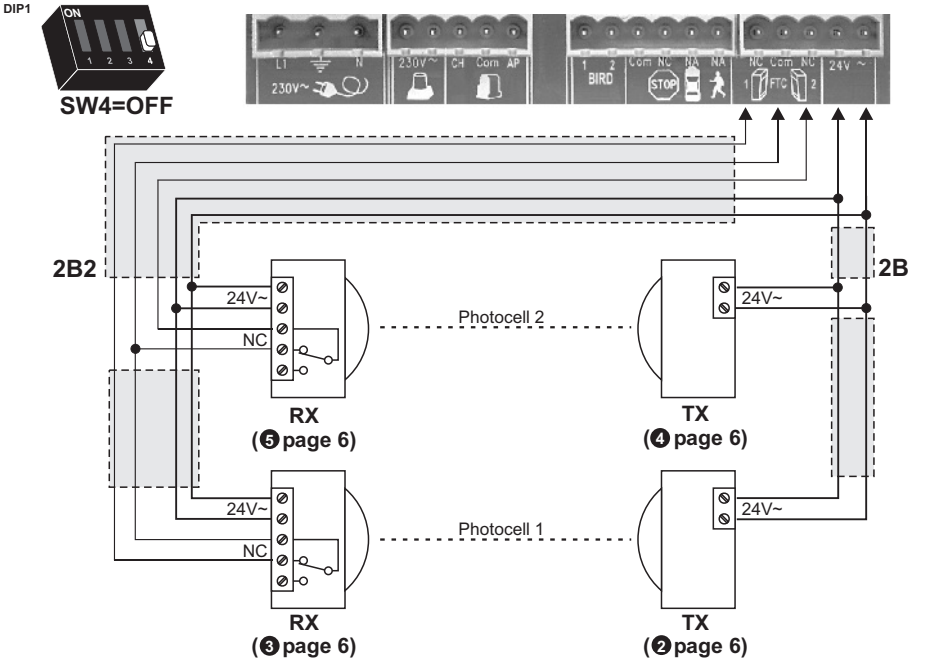
2.3.1 Power supply, flasher, geared-motor, commands



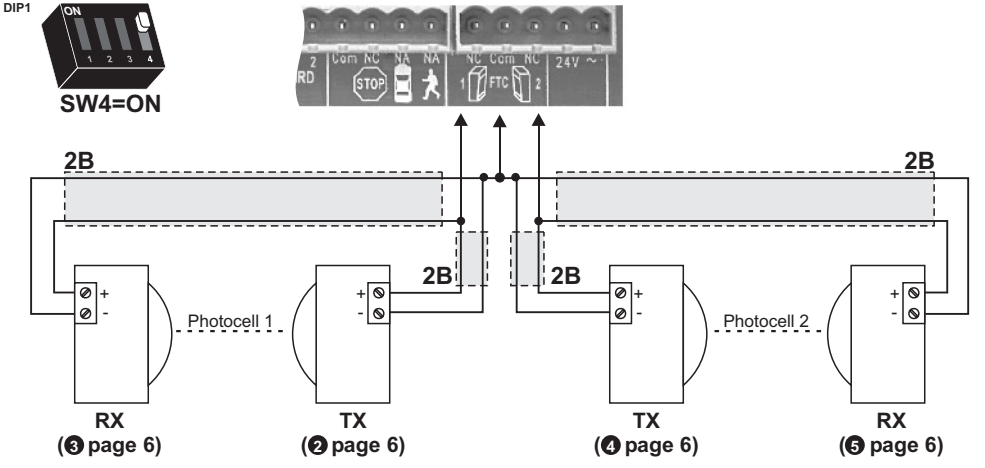
To leave the gate opened, it's possible to connect a timer, as shown above (par.3.2.1), and to set the opening of the gate in a given time. (i.e.: 7:00 ÷ 8:30 a.m.)

When the timer is activated (relay contact from NA Normally Open to NC Normally Close), the opening of the gate will stop up to the timer contact will be NC Normally Close.

2.3.2 Relay photocells (FX40, FX55)



2.3.3 Photocells with autodiagnosis (FX30)



3 Setup

3.1 Operating mode

The operating mode and the various options are settable by the switches 1, 2 and 3 of the dip-switch present on the board (⓯ a page 5). The switch 4 can set the installed photocell model (see previous page). Here's a summary of all options:

Switch 1 and 2: **Operating**	**Automatic for Park operating**	**OFF**	**OFF**
	Automatic operating	**ON**	**OFF**
	Step by step with automatic closing	**OFF**	**ON**
	Step by step with STOP	**ON**	**ON**
Switch 3: **Opening locking on photocells interruption**	**Locking enabled**	**ON**	
	Locking disabled	**OFF**	
SWITCH 4: **Tipo di fotocellula installata**	**FX30 (autodiagnosis)**	**ON**	
	FX40 - FX55	**OFF**	

To learn about operating logics see next paragraph.

ATTENTION: The DIP- SWITCH setting up has to be made with central unit switched off.

3.1.1 AUTOMATIC FOR PARKS operating (SW1=OFF - SW2=OFF)

One pulse allows : opening , pause , automatic closing .

During the opening operation, other pulses will be ignored. During the closing operation, possible pulses stop and reverse the movement of gate immediately.

A contact closed on PULSE A (Clock function) allows to open the gate up to the setted pause and it be open up to the opening of the contact.

GATE STATUS	PULSE A	PULSE B	STOP	PHOTOCELL 1	PHOTOCELL 2
CLOSE	Total Opening and reclosing after the time of pause	Partial Opening and closing operation after the time of pause	Disables A and B pulses and disable opening	**See SWITCH 3 pages 9 and 10**	
OPENING	**No effect** if the opening is started by the PULSE A **Total Opening** if the opening is started by the PULSE B	No Effect	Stops operation and switches to STOP mode	No Effect	
PARTIAL OPEN IN PAUSE	Total Opening	The reclosing is stopped and at the end of the pause it restores other 5 sec. up to the reset		The reclosing is stopped and at the end of the pause, it restores other 5 sec. up to the reset A total opening is possible.	
TOTAL OPEN IN PAUSE	The reclosing is stopped and at the end of the pause, it restores other 5 sec. up to the reset			The reclosing is stopped and at the end of the pause, it restores other 5 sec. up to the reset	
CLOSING	The closing is stopped and the gate opens again immediately			Stops operation and the gate opens immediately	
IN STOP	Restarts the operating procedure before the STOP (closing or opening)		The pulses A and B will be ignored. The opening or closing operation are locked		

3.1.2 AUTOMATIC operating (SW1=ON - SW2=OFF)

One pulse allows :opening, pause, automatic closing.

During opening and closing procedures, every pulse stops and reverse the movement of the gate immediately.

During the pause, a pulse recloses the gate immediately.

GATE STATUS	PULSE A	PULSE B	STOP	PHOTOCELL 1	PHOTOCELL 2
CLOSE	Total Opening and reclosing after the time of pause	Partial Opening and reclosing after the time of pause	Disables A and B pulses and disable opening	**See SWITCH 3 pages 9 and 10**	
OPENING	The gate stops and it recloses immediately.		Stops operation and switches to STOP mode	No effect	
OPEN IN PAUSE	The gate recloses immediately			The reclosing is stopped and at the end of the pause, it restores other 5 sec. up to the reset	
CLOSING	The gate stops and it opens immediately.			Stops operation and the gate opens immediately	
IN STOP	Restarts the operating procedure before the STOP (closing or opening)		The pulses A and B will be ignored. The opening or closing operation are locked		

3.2.3 STEP-BY-STEP WITH AUTOMATIC RECLOSING (SW1=OFF - SW2=ON)

One pulse allows : opening, pause, automatic closing

During opening and closing procedures, every pulse stops and reverse the movement of the gate immediately.

During the pause, a pulse recloses the gate immediately.

GATE STATUS	PULSE A	PULSE B	STOP	PHOTOCELL 1	PHOTOCELL 2
CLOSE	Total Opening and reclosing after the time of pause	Partial Opening and closing operation after the time of pause	Disables A and B pulses and disable opening	**See SWITCH 3 pages 9 and 10**	
OPENING	The opening is stopped and the next pulse recloses the gate		Stops operation and switches to STOP mode	No Effect	
OPEN IN PAUSE	Recloses the gate immediately			The reclosing is stopped and at the end of the pause, it restores other 5 sec. up to the reset	
CLOSING	It is locked and only a new pulse recloses the gate			Stops operation and the gate opens immediately	
IN STOP	Restarts the operating procedure before the STOP (closing or opening)		The pulses A and B will be ignored. The opening or closing operation are locked		

3.2.4 MANUAL STEP-BY-STEP WITH STOP operating (SW1=ON - SW2=ON)

One pulses opens; the next pulse stops; the next pulse closes ; the next pulse stops; the next pulse opens, etc .

GATE STATUS	PULSE A	PULSE B	STOP	PHOTOCELL 1	PHOTOCELL 2
CLOSE	Total Opening	Partial Opening	Disables A and B pulses and disable opening	**See SWITCH 3 pages 9 and 10**	
OPENING	The opening is stopped and the next pulse recloses the gate		Stops operation and switches to STOP mode	No Effect	
STOP	Reverses the movement of the motor			Pulses A and B are ignored and all movement are locked	
CLOSING	The closing is stopped and the next pulse opens the gate			Stops operation and the gate opens immediately	
IN STOP	Restarts the operating procedure before the STOP (closing or opening)		The pulses A and B will be ignored. The opening or closing operation are locked		

3.2 Electronic clutch adjustment (trimmer A)

This adjustment works on the thrust force of geared-motor: this force must cause the moving of the gate, and it's closely dependent on the weight of its structure.

During the movement, also the gate acquires a thrust force.

Under provisions of the law, the adjustment must be made so that the thrust force of the gate is equal to 15Kg; it means that a force equal to 15Kg, in opposition to the movement of the gate, **must stop the gate** during its movement.

To set this adjustment, we suggest you to use an instrument called *linear dynamometer*.

3.3 Time of pause adjustment (trimmer B)

If the central unit is setted on *Automatic operating* or *Automatic operating for Parks,* you must adjust the time of pause that must elapse between the end of the opening and the start of the closing of the gate.

3.4 Electronic Brake / Slowing Down (trimmer C)

Turned in anticlockwise direction:

Electronic brake: *disabled*

Slowing down: *enabled at the end of opening / closing*

Turned in clockwise direction:

Electronic brake: *enabled, reduces the movement after the limit/stop is activated.*

Slowing down: *disabled*

3.5 Control LEDs

Here's a summary of the signallings LEDs present on the board:

LED	COLOR	ON	BLINKING	OFF
⑦	green	*Pulse on input A (total opening)*	/	*st/by*
⑧	green	*Pulse on input B (partial opening)*	/	*st/by*
⑨	red	*st/by*	/	*Photocell 1 engaged*
⑩	red	*st/by*	/	*Photocell 2 engaged*
⑪	red	*st/by*	/	*Opening limit-stop engaged*
⑫	red	*st/by*	/	*Closing limit-stop engaged*
⑬	yellow	*st/by*	/	*STOP command active*
⑭	green	*Anomaly*	*Normal operating*	*Anomaly*

2.6 Remote-control receiver setup

Visualization of the programmed code

- Keep pressed **P1** and **P2** buttons (❺ and ❻ at page 5) for at least 2 seconds and not more than 5 seconds, up to the two LEDs (❼ and ❽ at page 5) light on.
- Pressing the **P1** button it will be displayed the 12-bit code of "A" channel by a sequence of blinkings of the LEDs:
  - one blink of LED ❼ indicates dip switch **ON**
  - one blink of LED ❽ indicates dip switch **OFF**
- At the end of the sequence, it will exit automatically the setup mode.

NOTE: *If no buttons is pressed in 5 seconds, the produre is stopped and no code will be displayed.*

NOTE: *To visualize the code of the **"B"** channel, repeat the same procedure using **the P2** button.*

Auto-learning of the remote-control code

- Keep pressed **P1** and **P2** buttons (❺ and ❻ at page 5) for at least 5 seconds up to the two LEDs start to blink (❼ and ❽ at page 5).
- Press **P1** button, only LED ❼ starts to blink.
- During the blinking, within 5 seconds press the **"A"** button of the remote-control to let acquire the code.
- The LED ❼ starts a sequence of blinkings to indicate that the code has been acquired and it will exit automatically the setup mode.

NOTE: *If no remote-control is activated in 10 seconds, the setup is stopped and no code will be programmed.*

NOTE: *For the acquisition of the code of the channel **"B"** of the remote-control, repeat the procedure using **P2** buttons and LED ❽.*

Summary of setup accessing times

Time of simultaneous pressure of P1 e P2 buttons:

	0 sec.	2 sec.	5 sec.
LED Status	LED "1" and "2" turn off	LED "1" and "2" light	LED "1" and "2" blink
Function	No action	Release P1 and P2 buttons to enter in Code Display Mode.	Release P1 and P2 buttons to enter in Auto-acquisition Code Mode

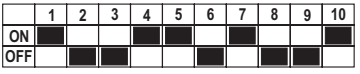
2.7 Remote-control setup

The TWIN allows the independent set-up for each of 2 channels; It's possible to memorize a different code on each button, and a channel to select (A, B, C, or D) also if they are not on the same code. The set-up operation has to be repeated for each of the 2 buttons of the radio-control.

In order to start the set-up phase you have to push both the buttons for some seconds, until the LED remains on, then you have to leave them:

- For **insert** a new code you have to access with the following sequence: **"1" - "1" - "0" - "0"**
  - Insert the **10 digit of the code** using:
    - **"0"** (**right** button): It means dip-switch **"OFF"** for the previous TWIN versions*
    - **"1"** (**left** button): It means dip-switch **"ON"** for the previous TWIN versions*
  - During the insert of each code the LED will switch off for some seconds.
  - Insert the **2 digit of the channel** using:
    - Channel **A** **"1"** - **"0"**: It means the left button for the previous TWIN versions
    - Channel **B** **"1"** - **"1"**: It means the right button for the previous TWIN versions
    - Channel **C** **"0"** - **"0"**: to use together with quadri-channels receivers
    - Channel **D** **"0"** - **"1"**: to use together with quadri-channels receivers
  - Push the button that you want to assign at the code.
  - The LED switch off at the end of the set-up.

* For example, to duplicate the left button (channel A) of a previous TWIN version that has the dip-switch set as following:



You have to digit the following buttons sequence:

1 1 0 0 Access — **1 0 0 1 1 0 1 0 0 1** code — **1 0** channel A (fast flash of the LED) — **1** assigned to left button

- For **read** the code you have to digit the following sequence:**"1" - "0" - "1" -"0"**
  - Push on the button that you want to know the code
  - The LED switch off and it start one series of 12 flashes:
    - A brief flash means **"0"**
    - A long flash means **"1"**

During the set-up, if you don't push on any button for at least 5 seconds the LED switch off and the setting phase finish automatically.

Unscrew the screw on the bottom of the radio-control to open the plastic cover, take off the old battery and insert a new one according with the polarities indicated on the plastic cover.

Check the correct operation of the two buttons after to close the plastic cover.

4 Maintenance

4.1 Gate

It`s suggested to carry out periodic checks on the structure of the gate and in particular it`s suggested to verify verificare the perfect condition of gears, ruck and all mechanical elements.

4.2 Fuses

F1	3,15A 250V	VOLTAGE Fuse	This fuse allows the protection from overloads of the central unit transformer, from voltage drops of the flasher and of the geared-motor.